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09/840,277	04/23/2001	Ulrich Feige	A-688A	3317

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EXAMINER

WESSENDORF, TERESA D

ART UNIT	PAPER NUMBER
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1639

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application N .

09/840,277

Applicant(s)

FEIGE ET AL.

Examiner

T. D. Wessendorf

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10/21/03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2-5, 7-13 and 25 is/are pending in the application.
- 4a) Of the above claim(s) 10-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-5, 7-9, 13, 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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***Status of Claims***

Claims 1, 6 and 14-24 have been cancelled in the response of 1/30/03.

Claims 10-12 are withdrawn from consideration.

Claims 2-5, 7-9, 13 and 25 are under examination.

***Specification***

A. The amendment filed 7/18/03 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the definition of X as any amino acid and other definitions of X as provided in the amendments at page 4.

Applicant is required to cancel the new matter in the reply to this Office Action.

***Response to Arguments***

In the REMARKS, Applicants state the specification clearly described the text by reference to the X number substituents, and the added text is the same as in the incorporated documents.

The Applicants' attorney further states that an executed declaration has been made. The Applicants note that the cited

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PCT applications correspond to issued U.S. patents, as noted in the foregoing amendment, so that no amendment was necessarily required.

In response, the cited U.S. Patents do not recite for any definitions of X as now presented in the specification. Rather, the patents recite specific integrin sequences and not for any type of adhesion molecules. Furthermore, the declaration executed by the attorney is not on file.

B. The sequence listing recites for only 135 sequences. Claim 25 recites up to Seq. ID. No. 137, which is not listed in the listing. Clarification and/or correction are required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-5, 7-9, 13 and 25 are rejected under 35

U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had

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possession of the claimed invention for reasons advanced in the last Office action.

***Response to Arguments***

Applicants admit that the specification discusses proteolysis in Example 3, page 57 for laminins. But argue that while the statement acknowledges "some proteolysis" the Examiner requires proteolysis of every single molecule in a sample, making that sample entirely inactive. Despite its acknowledgment of some proteolysis, the statement says that the laminins molecule possessed inhibitory activity. The proteolysis merely caused heterogeneity in the sample such that the IC100 could not be assessed accurately. Example 3 still describes laminins as having activity, which is sufficient to satisfy the utility requirement of Section 101 and the enablement requirement of Section 112. It is further argued that proteolysis applied only to the laminins molecule, not to all YIGSR peptides. Example 3 does not report proteolysis in the laminin-3 peptide and the laminin-8 Fc fusion.

In reply, the rejection is not a utility or enablement rejection. Rather, a written description as to the different cell adhesion molecules, as presently claimed, that can be fused to the Fc region without being degraded by proteolytic enzymes. The specification already encountered unpredictable effect for

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the family of specific integrins as the laminins. How much more for a skilled artisan given no guidance as to which adhesion molecules can be attached to Fc such that degradation would not occur and can be delivered safely to the intended in vivo site? As a skilled in the art knows, one of the greatest challenges faced in the art is the delivery of drugs to the intended site without being degraded by proteolytic enzymes. Thus, it is not readily apparent from the description of the single laminin family as to its applicability to any or various types of cell adhesion molecules. The specification simply generalizes or recites cell adhesion antagonists and nothing more.

The as-filed specification does not provide support for the presently claimed proviso of at least one of the P comprises Seq. ID. NO. 7. MPEP 714.02 states that applicants specifically point out support for any amendments to the claims.

***Claim Rejections - 35 USC § 112, second paragraph***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-5, 7-9, 13 and 25 are rejected under 35

U.S.C. 112, second paragraph, as being indefinite for failing to

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particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of the claims has been overcome with the amendments to the claims.

The following rejections apply to the newly amended claims:

1. Claim 25 lacks antecedent basis of support for Seq. ID 132. Seq. ID. 32 does not comprise the amino acid sequence of Seq. ID. 7.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-5, 7-9, 13 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whitty et al (US 2002/0155547) in view of Mu (BBRC, Ref. DB) for reasons set forth in the last Office action.

***Response to Arguments***

Applicants admit that Whitty et al describe fusion proteins comprising interferon beta but do not mention laminin or any other adhesion antagonist peptide. Nothing in the Whitty et al. reference suggests creating Fc fusions with laminin or any other adhesion antagonist peptide. Mu is argued to discuss conjugation of laminin peptide with polyethylene glycol (PEG). It is further argued that Fc differs from PEG and SMA in significant ways. First, Fc is a fragment of a naturally occurring protein and can be produced recombinantly. The Fc-peptide fusion molecule, in turn, can also be produced recombinantly without the chemical processes required for SMA - and PEG-conjugated molecules. Mu et al show no recognition of this advantage in production of Fc-peptide fusion molecules. Second, Fc is a-multimeric molecule (dimeric-in IgG Fc; for example) whereas the PEG and SMA employed by Mu et al appear to be monomeric. Nothing in the Mu et al reference suggests that its authors understood this advantage of Fc-peptide fusion.

It is further argued that Mu et al do not teach that laminin and interferon belong to the family of extracellular matrix domains active in cell adhesion. The comparison of interferons to laminin ignores that the application



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concerns the laminin pentapeptide YIGSR rather than the full 850 kD laminin protein. There is no suggestion in the art to combine the teachings of Whitty et al or Mu et al, and that those teachings fail to encompass the claimed invention even in combination.

In reply, Mu was employed for the purpose not as argued. Rather, is employed because of its teachings that it is obvious to conjugate the YISGR peptides with other carrier besides PEG as taught by Mu since Mu discloses that alone, without any carrier, YISGR undergoes degradation. It would have been obvious to replace the interferon, which as applicants state, is a cytokine since Mu states his findings with cytokine has been presently extended to applied to another, anti-metastatic compound, as the YISGR containing compounds, as the cytokines. Furthermore, as taught by Whitty the interferon, as taught by Mu, can be chemically couple to Ig fusions to any clinically acceptable carrier molecule like polyethylene glycol using conventional coupling techniques. Accordingly, at the time the invention was made, PEG as taught by Whitty and Mu or Fc as taught by Whitty has been used as carrier for different compounds, be it a laminin or interferons or other antimetastatic drug. The ultimate goal is similarly achieved, that is to safely

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deliver the drug, using these carriers, to the intended site without being degraded by proteases.

***Allowable Subject Matter***

As stated in the last Office action, the elected species is free of prior art. A claim drawn to the fusion of the elected species consisting essentially of Seq. ID. 95 (or 96) fused either at the N or C terminus of Seq. ID. 2 (Fc) would be allowable if made into an independent claim.

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated

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from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

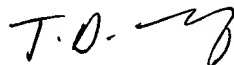
This application contains claims 10-12 drawn to a non-elected invention. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. D. Wessendorf whose telephone number is (703) 308-3967. The examiner can normally be reached on Flexitime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (703) 306-3217. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7924 for regular communications and (703) 308-7924 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.



T. D. Wessendorf  
Primary Examiner  
Art Unit 1639

tdw

January 9, 2004